

group consisting of drought and low temperature, and wherein the STSRP is a *Physcomitrella patens* STSRP.

37. (New) The transgenic plant cell of Claim 36, wherein the STSRP is a PLC-2 protein as defined in SEQ ID NO:12.

38. (New) The transgenic plant cell of Claim 36, wherein the STSRP coding nucleic acid comprises a polynucleotide as defined in SEQ ID NO:7.

39. (New) A transgenic plant cell transformed by a Signal Transduction Stress-Related Protein (STSRP) coding nucleic acid, wherein the STSRP coding nucleic acid hybridizes under stringent conditions to at least one sequence selected from the group consisting of the sequence of SEQ ID NO:7 and the full-length complement of the sequence of SEQ ID NO:7, and wherein the stringent conditions comprise at least one wash in a 0.2X sodium chloride/sodium citrate (SSC), 0.1% SDS solution at 50°C.

40. (New) The transgenic plant cell of Claim 39, wherein the stringent conditions comprise an initial hybridization in a 6X SSC solution at 45°C followed by at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

41. (New) A transgenic plant cell transformed by a STSRP coding nucleic acid, wherein the STSRP coding nucleic acid comprises a polynucleotide encoding a polypeptide having at least 80% sequence identity with a polypeptide as defined in SEQ ID NO:12.

42. (New) The transgenic plant cell of any of Claims 36, 37, 38, 39, or 41, wherein the plant is a monocot.

43. (New) The transgenic plant cell of any of Claims 36, 37, 38, 39, or 41, wherein the plant is a dicot.

44. (New) The transgenic plant cell of any of Claims 36, 37, 38, 39, or 41, wherein the plant is selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean,

peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, solanaceous plants, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grass, and a forage crop.

45. (New) A transgenic plant comprising a plant cell according to any of Claims 36, 37, 38, 39, or 41.

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46. (New) A seed produced by a transgenic plant comprising a plant cell according to any of Claims 36, 37, 38, 39, or 41, wherein the seed comprises the STSRP nucleic acid, wherein the seed is true breeding for an increased tolerance to an environmental stress as compared to a wild type variety of the plant cell, and wherein the environmental stress is selected from one or more of the group consisting of drought and low temperature.

47. (New) An isolated Signal Transduction Stress-Related Protein (STSRP) coding nucleic acid, wherein the STSRP coding nucleic acid comprises a polynucleotide that encodes a polypeptide as defined in SEQ ID NO:12.

48. (New) The isolated STSRP coding nucleic acid of Claim 47, wherein the STSRP coding nucleic acid comprises a polynucleotide as defined in SEQ ID NO:7.

49. (New) An isolated STSRP coding nucleic acid, wherein the STSRP coding nucleic acid hybridizes under stringent conditions to at least one sequence selected from the group consisting of the sequence of SEQ ID NO:7 and the full-length complement of the sequence of SEQ ID NO:7, and wherein the stringent conditions comprise at least one wash in a 0.2X sodium chloride/sodium citrate (SSC), 0.1% SDS solution at 50°C.

50. (New) The STSRP coding nucleic acid of Claim 49, wherein the stringent conditions comprise an initial hybridization in a 6X SSC solution at 45°C followed by at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

51. (New) An isolated STSRP coding nucleic acid, wherein the STSRP coding nucleic acid comprises a polynucleotide encoding a polypeptide having at least 80% sequence identity with a polypeptide as defined in SEQ ID NO:12.

52. (New) An isolated recombinant expression vector comprising an STSRP coding nucleic acid of Claims 47, 48, 49, or 51, wherein expression of the STSRP in a plant cell results in the plant cell's increased tolerance to an environmental stress as compared to a wild type variety of the plant cell, and wherein the environmental stress is selected from one or more of the group consisting of drought and low temperature.

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53. (New) A method of producing a transgenic plant containing a Signal Transduction Stress-Related Protein (STSRP) coding nucleic acid, wherein expression of the STSRP in the plant results in the plant's increased tolerance to an environmental stress as compared to a wild type variety of the plant, comprising,

- a. transforming a plant cell with an expression vector comprising the nucleic acid; and
- b. generating from the plant cell a transgenic plant with an increased tolerance to an environmental stress as compared to a wild type variety of the plant,

wherein the STSRP is a *Physcomitrella patens* STSRP, and wherein the environmental stress is selected from one or more of the group consisting of drought and low temperature.

54. (New) The method of Claim 53, wherein the STSRP is a PLC-2 polypeptide as defined in SEQ ID NO:12.

55. (New) The method of Claim 53, wherein the STSRP coding nucleic acid comprises a polynucleotide as defined in SEQ ID NO:7.

56. (New) A method of producing a transgenic plant containing a Signal Transduction Stress-Related Protein (STSRP) coding nucleic acid, wherein expression of the STSRP in the plant results in the plant's increased tolerance to an environmental stress as compared to a wild type variety of the plant, comprising,

- a. transforming a plant cell with an expression vector comprising the nucleic acid; and

b. generating from the plant cell a transgenic plant with an increased tolerance to an environmental stress as compared to a wild type variety of the plant, wherein the STSRP coding nucleic acid hybridizes under stringent conditions to at least one sequence selected from the group consisting of the sequence of SEQ ID NO:7 and the full-length complement of the sequence of SEQ ID NO:7, wherein the stringent conditions comprise at least one wash in a 0.2X sodium chloride/sodium citrate (SSC), 0.1% SDS solution at 50°C, and wherein the environmental stress is selected from one or more of the group consisting of drought and low temperature.

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57. (New) The method of Claim 56, wherein the stringent conditions comprise an initial hybridization in a 6X SSC solution at 45°C followed by at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

58. (New) A method of producing a transgenic plant containing a Signal Transduction Stress-Related Protein (STSRP) coding nucleic acid, wherein expression of the STSRP in the plant results in the plant's increased tolerance to an environmental stress as compared to a wild type variety of the plant, comprising,

- a. transforming a plant cell with an expression vector comprising the nucleic acid; and
b. generating from the plant cell a transgenic plant with an increased tolerance to an environmental stress as compared to a wild type variety of the plant, wherein the STSRP coding nucleic acid comprises a polynucleotide encoding a polypeptide having at least 80% sequence identity with a polypeptide as defined in SEQ ID NO:12, and wherein the environmental stress is selected from one or more of the group consisting of drought and low temperature.

REMARKS

In addition to the above requested amendments, Applicants submit the remarks below. Applicants respectfully request reconsideration and allowance of the remaining claims in light of these amendments and remarks. Applicants also would like to thank Examiner Collins and Primary Examiner Bui for taking time to discuss this case in a personal interview on January 7, 2003.